

We claim:

1 1. A method of conducting a secure transaction with an on-line service while
2 offline comprising the steps of issuing a transaction authorization token to a user from an
3 application server for the on-line service while the user is online; preparing an off-line
4 transaction object containing data to specify and request the transaction; sending a
5 message to the on-line service, said message containing the transaction object and the
6 authorization token; upon receipt of the message, the application server validating the
7 token to authenticate the user and to authorize the transaction; and executing the
8 transaction object if the transaction is authorized.

1 2. The method of claim 1, wherein the token is issued to the user via an e-
2 mail message sent from the application server.

1 3. The method of claim 1, wherein the token is issued to the user via a
2 download operation while the user is on-line.

1 4. The method of claim 1, wherein the user prepares the transaction object
2 off-line.

1 5. The method of claim 1, wherein the on-line service comprises the
2 application server, and the user requests the token for the transaction from the application
3 server.

1 6. The method of claim 5, wherein the application server accesses a database.

2 7. The method of claim 1, wherein the token comprises a unique identifier
3 that is generated by the on-line service when the token is issued.

1 8. The method of claim 1, wherein the token is a one-way encryption of at
2 least one of an identity of the user, a transaction type, and a data object for which the
3 transaction is authorized.

1 9. The method of claim 2, wherein the application server receives an
2 incoming message including the token, checks the token for validity, and accepts or
3 rejects the token.

1 10. The method of claim 9, wherein the message delivering the token and off-
2 line transaction from the user to the application server is an e-mail message delivered to
3 the application server via an asynchronous e-mail delivery method.

1 11. The method of claim 10 where the asynchronous delivery mechanism is
2 database record synchronization.

1 12. The method of claim 11 where the asynchronous e-mail delivery method
2 comprises a synchronization of data between a portable computing device and an on-line
3 service.

1 13. The method of claim 1, wherein the token includes data representing a
2 time period during which the token is valid.

1 14. The method of claim 1, wherein the token includes data representing a
2 valid access duration for the token.

1 15. The method of claim 1, wherein the token specifies an e-mail audit
2 signature, and said token is valid only if the transaction is sent from an e-mail program
3 via an e-mail delivery path that matches the e-mail audit signature.

1 16. The method of Claim 15, wherein an e-mail address to which the message
2 is sent varies according to an authorized data object and transaction type.

1 17. The method of claim 1, further comprising encrypting the transaction
2 object.

1 18. The method of claim 17, wherein said encrypting comprises issuing a
2 temporary public key that is a one-way encryption function of an address to which the
3 transaction is to be sent for encryption of the transaction object.

1 19. The method of claim 1, wherein the token is contained in a body or a
2 header of an e-mail message.

1 20. The method of claim 1, wherein the token and the transaction object are
2 attachments to an e-mail message.

1 21. The method of claim 11, wherein the application server ensures that the
2 token can only be used once, by authorizing a specific transaction by a specific user on
3 specific data objects.

1 22. The method of claim 1, wherein the application server is a web-based
2 application server.

1 23. The method of claim 1, whereon said transaction is selected from the
2 group consisting of a database modification, update, adding a file, and editing a file.

1 24. The method of claim 23 further comprising checking out a file, editing the
2 file off-line, and checking in the file as an e-mail attachment.

1 25. The method of claim 1, further comprising authenticating the user with a
2 password and a network identity while the user is accessing the on-line service.

1 26. The method of claim 1, wherein the user comprises a software agent that
2 conducts the transaction on behalf of the user.